

ABSTRACT

A snapshot tree structure includes a base volume storing a current user data at a current time, a first read-only snapshot descending from the base volume, and a second read-only snapshot descending from the first read-only snapshot. The first read-only snapshot is created at a first time earlier than the current time. The first read-only snapshot stores a first data of the base volume at the first time before the first data is modified in the base volume. The second read-only snapshot is created at a second time earlier than the first time. The second read-only snapshot stores a second data of the base volume at the second time before the second data is modified in the base volume.